

REMARKS

Prior to entry of this Amendment, claims 1-4 are pending. By this Amendment, claim 3 is amended to correct the dependency thereof and claim 2 is canceled and the subject matter thereof is incorporated into claim 1. Also by this Amendment, the specification is amended. No new matter is added.

Claims 1 and 3-4 are therefore pending in the present application and subject to examination.

Favorable reconsideration of this application is respectfully requested in view of the foregoing amendments and following remarks.

Objection to the Drawings

In the Office Action mailed December 2, 2004, the drawings were objected to because reference numeral 30 was not described in the specification. The specification has been amended to include a description of reference numeral 30. No new matter has been added.

Applicant respectfully submits that the drawings are in compliance with U.S. patent practice, and withdrawal of the objection is respectfully requested.

Claims 1 and 3-4 Recite Patentable Subject Matter

In the Office Action mailed December 2, 2004, claims 1 and 2 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,354,076 to Yasui et al. (hereinafter "Yasui"). Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yasui in view of U.S. Patent No. 5,746,049 to Cullen et al. (hereinafter "Cullen"). It is noted that claim 2 has been canceled and the subject matter

thereof has been incorporated into claim 1. To the extent that the rejection remains applicable to the claims currently pending, Applicant hereby traverses the rejections, as follows.

Applicant respectfully submits that claims 1 and 3-4 recite subject matter that is neither disclosed nor suggested by the applied art of record.

Claim 1 recites, in part:

start-time temperature state detecting means for detecting a temperature state of said exhaust system upon start of said internal combustion engine; and

post-start exhaust gas calory calculating means for calculating the calory of exhaust gases discharged after the start of said internal combustion engine,

switching valve driving means for driving said switching valve to said closed position upon start of said internal combustion engine, and for driving said switching valve to said open position in accordance with the detected atmospheric pressure state, the detected start-time temperature state of said exhaust system, and the calculated post-start exhaust gas calory.

In the exhaust gas purifying apparatus of claim 1, a start-time temperature state detecting means detects a temperature state of the exhaust system upon start of the internal combustion engine. A post-start exhaust gas calory calculating means calculates the calory of exhaust gases discharged after the start of the internal combustion engine. A switching valve driving means drives the switching valve to a closed position upon start of the internal combustion engine. The switching valve driving means drives the switching valve to an open position in accordance with the detected atmospheric pressure state, the detected start-time temperature state of the exhaust system, and the calculated post-start exhaust gas calory.

Therefore, according to the invention recited in claim 1, and as set forth in the specification at page 7, line 16 through page 8, line 7, the switching valve driving means drives the switching valve to the open position in accordance with the start-time temperature state detected by the start-time temperature state detecting means and the post-start exhaust gas calory calculated by the post-start exhaust gas calory calculating means. Thus, since the start-time temperature state detecting means detects a temperature state of the exhaust system upon start of the internal combustion engine, the activated state of the catalyzer is evaluated based on the parameter indicative of the temperature state only upon start of the internal combustion engine. Thereafter, the activated state of the catalyzer is evaluated based on the exhaust gas calory. It is therefore possible to determine the activated state of the catalyzer with great accuracy while avoiding the inaccuracy that occurs when the activated state of the catalyzer is determined based on a temperature detected by a temperature sensor after the start of the internal combustion engine. Consequently, the switching valve can be driven to the open position at an optimal timing immediately after the catalyzer is actually activated, thereby achieving an optimal exhaust gas characteristic.

In contrast, although Yasui discloses a start-time temperature state detecting means (104 of Fig. 1), Yasui neither discloses nor suggests a post-start exhaust gas calory calculating means or a switching valve driving means, as recited in claim 1.

Yasui does, however, disclose calculating an estimated adsorbed hydrocarbon (HC) amount hcm.hat. The estimated adsorbed HC amount hcm.hat is defined as an estimated amount of HC adsorbed on the adsorbent 74 (column 7, lines 45-48). The

current value of the estimated adsorbed HC amount $hcm.hat$ (n) is determined by subtracting a value $X.HC.PURGE$ from a preceding value of $hcm.hat$, i.e., $hcm.hat$ (n-1), because the desorbed HC is purged into the engine air intake system through an exhaust gas recirculation EGR conduit 82 (Fig. 1, step 314 of Fig. 13, and column 10, lines 49-57). Therefore, the estimated adsorbed HC amount $hcm.hat$ of Yasui is different from the post-start exhaust gas calory of the claimed invention, which indicates a calory of exhaust gases discharged after the start of the internal combustion engine.

Thus, Yasui does not disclose or suggest the post-start exhaust gas calory calculating means for calculating the calory of exhaust gases discharged after the start of the internal combustion engine, as recited in claim 1.

Further, the estimated adsorbed HC amount $hcm.hat$ of Yasui is used only for determining a temperature-rise-dead-time value $dtrs.lmt$ (step 14 of Fig. 4 and Fig. 10) used for adsorbent deterioration discrimination (step 200 of Fig. 12), and for determining whether the purging of the desorbed HC is completed (step 306 of Fig. 13). Yasui neither discloses nor suggests driving a switching valve to an open position, for switching an exhaust passage between first and second passages, in accordance with a calculated post-start exhaust gas calory. Rather, Yasui discloses controlling switching of an exhaust gas passage in accordance with a detected temperature $tmp.trs$ and a temperature-rise-discrimination threshold value $X.TRS.TLMT$ (step 24 of Fig. 4) or a time value of the engine starting timer $tm.dtrs$ and a predetermined value $X.TRS.MODE$ (step 28 of Fig. 4). The parameters $tmp.trs$, $X.TRS.TLMT$, $tm.dtrs$ and $X.TRS.MODE$ are detected or set irrespective of the estimated adsorbed HC amount $hcm.hat$.

Thus, Yasui fails to disclose or suggest driving the switching valve to the open position in accordance with the calculated post-start exhaust gas calory, as recited in claim 1.

To qualify as prior art under 35 U.S.C. §102, a single reference must teach, i.e., identically describe, each feature of a rejected claim. As explained above, Yasui does not disclose or suggest each and every feature of independent claim 1. Therefore, Applicant respectfully submits that independent claim 1 is neither anticipated nor rendered obvious by Yasui.

Cullen also fails to disclose or suggest post-start exhaust gas calory calculating means for calculating the calory of exhaust gases discharged after the start of the internal combustion engine, as recited in claim 1. In addition, Cullen fails to disclose or suggest driving the switching valve to the open position in accordance with the calculated post-start exhaust gas calory, as recited in claim 1.

To establish *prima facie* obviousness of a rejected claim, the applied art of record must teach or suggest each feature of a rejected claim. See M.P.E.P. §2143.03. As explained above, none of the applied art of record discloses or suggests each and every feature recited in independent claim 1.

Therefore, Applicant respectfully submits that independent claim 1 is patentably distinct over Yasui and Cullen, alone or combined, and in condition for allowance.

Claims 3 and 4 depend from claim 1. Therefore, Applicant respectfully submits that claims 3 and 4 are allowable for the same reasons as claim 1, as well as for the additional subject matter recited therein.

Accordingly, Applicant respectfully requests withdrawal of the rejections of claims 1, 3 and 4.

CONCLUSION

For all of the above reasons, it is respectfully submitted that claims 1 and 3-4 are in condition for allowance. Accordingly, favorable reconsideration and withdrawal of the outstanding rejections, and an issuance of a Notice of Allowance, are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300 referencing docket number **108419-00052**.

Respectfully submitted,
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